



# Project Continues to Examine Design Changes to Lower Costs

## A Partnership for Safe Chemical Weapons Destruction

Based on anticipated funding constraints, the Program Manager Assembled Chemical Weapons Alternatives (PMACWA) and Bechtel Parsons Blue Grass (BPBG) are continuing to study options that may reduce the cost of constructing and operating the Blue Grass Chemical Agent-Destruction Pilot Plant (BGCAPP) facility.

After receiving direction from the PMACWA, the project immediately began to implement redesign efforts in three areas:

Design changes in the main Munitions Demilitarization Building (MDB) that result from reduced processing rates. The engineering team in Pasadena, Calif., has worked to reduce the size of the MDB from 99,000 square feet to approximately 75,900 square feet.

- **Potential Savings:** Approximately \$115 million
- **Status:** Being implemented into the design

The team has optimized post-treatment processing rates and reduced the supercritical water oxidation (SCWO) units from five to four. With the assumption that the Expedited Removal of Rocket Motor (ERRM) initiative will be implemented to eliminate the rocket motors from processing, the redesign now assumes only three SCWO units are needed and the Brine Reduction System has been eliminated.

- **Potential Savings:** Approximately \$32 million
- **Status:** Being implemented into the design

While originally the project was going to use the same conveyors and overhead cranes in the container handling building (CHB) as the baseline incineration facilities, the equipment is expensive and high maintenance. The project is now going to use more reliable material handling equipment used in the steel industry to move munitions within the CHB.

- **Potential Savings:** Approximately \$14 million
- **Status:** Being implemented into the design

The government and systems contractor team are also investigating additional design alternatives that may reduce the overall life cycle cost of the facility. The communities, through elected officials, the Kentucky Chemical Destruction Community Advisory Board and the governor-appointed Kentucky Chemical Demilitarization Citizens' Advisory Commission have been involved in the decision-making process.

The project put together seven design consideration study teams to evaluate these additional potential design alternatives. These teams, comprised of representatives from PMACWA, Army Corps of Engineers, Bechtel Parsons Blue Grass, Blue Grass Chemical Activity, Blue Grass Army Depot, FOCIS Associates, Mitretek Systems and Science Applications International Corporation, are looking at several options.

### FOR MORE INFORMATION

#### CONTACT:

Blue Grass Chemical  
Stockpile  
Outreach Office  
1000 Commercial Drive  
Suite 2  
Richmond, KY 40475  
(859) 626-8944  
bgoutreach@bah.com  
www.pmacwa.army.mil

Blue Grass Army Depot  
Public Affairs Office  
(859) 779-6221

Blue Grass Chemical  
Activity Public Affairs  
(859) 779-6897

Bechtel Parsons Blue  
Grass  
(859) 625-1291

Reconfiguring the mustard projectiles by removing the energetics before treatment in the facility. The team is examining the physical removal of the burster and fuze well cup from the projectile. This material can then be processed at a separate facility from the agent-containing projectile. This operation can be performed manually under engineering controls using well-developed technology and trained personnel. The team is also investigating alternative destruction methods including the Explosives Destruction System, Controlled Detonation Chamber and a Static Deactivation Chamber that is currently undergoing testing in Germany.

- **Potential Savings:** Approximately \$31 million
- **Status:** Ongoing. Will be soliciting input from the Kentucky Chemical Destruction Community Advisory Board before making a final decision

Moving structures currently within the restricted area to areas outside the chemical limited area fence line. This will reduce the number of employees who need to be part of the chemical personnel reliability program (CPRP). The CPRP is a program designed to ensure the highest possible standards of individual reliability in employees performing duties associated with chemical weapons storage, handling and disposal. The program was established to ensure that the individuals assigned to positions involving access to or responsibility for the security of chemical material are emotionally stable, loyal to the United States, trustworthy, and physically fit to perform assigned duties. Individuals outside the fence will not be handling chemical weapons and include such functions as administration, equipment maintenance, etc.

- **Potential Savings:** Approximately \$36 million
- **Status:** Being implemented into the design effort

Shipping chemical agent hydrolysate and energetics hydrolysate out of state to a permitted treatment and disposal facility. In the destruction process, munitions will be disassembled by modified reverse assembly. The chemical agent and energetics are separated. Agent and energetics are chemically mixed with a caustic solution or water to destroy the chemical agent using hydrolysis. The resulting chemical compounds, known as hydrolysates, are held and tested to ensure agent destruction before proceeding to secondary treatment. The current design calls for using supercritical water oxidation as a post-treatment.

- **Potential Savings:** Ranges from \$60 savings to an \$148 million cost increase depending on public, political, technical, programmatic and environmental risks
- **Status:** Recommendation was made to Program Manager Assembled Chemical Weapons Alternatives to continue with the on-site supercritical water oxidation design. This action has been endorsed by the Kentucky Chemical Destruction Community Advisory Board and Chemical Demilitarization Citizens' Advisory Commission. PMACWA has accepted the recommendation while retaining the option for off-site treatment of hydrolysates. Final decision by PMACWA and the Department of Defense is pending.

Shipping secondary wastes out of state to facilities that are permitted to handle hazardous wastes.

- **Potential Savings:** Approximately \$27 million
- **Actions:** This action has been endorsed by the Kentucky Chemical Destruction Community Advisory Board and will be incorporated into the redesign.

The following options were also examined and found to have no cost benefit:

1. Reviewing the new guidance on airborne exposure limits to evaluate the potential to eliminate the heated discharge conveyors.
2. Re-evaluating closure needs, laws and requirements. The project will continue to involve the Blue Grass Army Depot, Kentucky Department for Environmental Protection, the Kentucky Chemical Destruction Community Advisory Board and other stakeholders in closure planning and implementation.

An alternative for rocket processing is being studied wherein the rocket motors are separated from the rocket warheads in advance of processing the warheads in the BGCAPP. This study, known as Design Consideration 43A, was modified in response to recent rocket fire events at the baseline incineration sites. This effort is no longer being looked at as a cost reduction. As a risk reduction effort, the project team is now evaluating the separation of rocket warheads and motors and processing the rocket motors in another facility on the depot. This effort became Design Consideration 43B, which was later renamed ERRM. It is currently limited to the design and demonstration of first-of-its-kind rocket separation equipment. If implemented, it will be a separate facility from the BGCAPP main facility. In parallel, the project is implementing DC 43C in the Munitions Demilitarization Building redesign. DC 43C mainly consists of including sufficient floor space and structural design for DC 43A, which includes separated explosive containment vestibules each with rocket motor separation machines per the ERRM facility. The current path forward is to incorporate the new rocket motor separation technology into the redesign of the MDB as a risk-reduction effort.

Other items that have been redesigned include replacement of the catalytic oxidizer and the smaller upstream venturi scrubber in the off-gas treatment system with an air-heated bulk oxidizer. This will be used for treatment of off-gases from the metal parts treater and energetics bulk hydrolyser off-gas waste streams, not for the treatment of chemical agent or agent-contaminated energetics. We will also continue to monitor secondary waste treatment lessons learned from other chemical weapons destruction sites and apply them to the project as appropriate.